

Appellant's Brief on Appeal

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

In re patent application of:  
Chitrapura et al.

Atty. Docket No.: JP920030160US1

Serial No.: 10/729,165

Group Art Unit: 2626

Filed: December 5, 2003

Examiner: Vo, Huyen X.

For: **EXTRACTING AND GROUPING OPINIONS FROM TEXT DOCUMENTS**

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Honorable Commissioner of Patents  
Alexandria, Virginia 22313-1450

**APPELLANT'S BRIEF ON APPEAL UNDER 35 U.S.C. §134(a)**

Sir:

Appellant respectfully appeals the decision of the Examiner in the final rejection of claims 1-3, 6-10, 12-13, 16-19, 29-35, and 37-42 in the Final Office Action mailed October 14, 2008.

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### **I. STATEMENT OF THE REAL PARTY OF INTEREST**

The real party of interest is International Business Machines Corporation, assignee of 100% interest of the above-referenced patent application.

### **II. STATEMENT OF RELATED CASES**

There are no other appeals or interferences known to Appellant, Appellant's legal representative or Assignee, which would directly affect or be directly affected by or have a bearing on the Board's decision on this appeal.

### **III. JURISDICTIONAL STATEMENT**

The Board has jurisdiction under 35 U.S.C. 134(a). The Examiner mailed a final rejection on October 14, 2008, setting a three-month shortened statutory period for response. The time for responding to the final rejection expired on January 14, 2009. Rule 134. A notice of appeal was filed on January 7, 2009. The time for filing an appeal brief is two months after the filing of a notice of appeal. Bd.R. 41.37(c). The time for filing an appeal brief expires on March 7, 2009. The appeal brief is being filed on March 5, 2009.

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**V. TABLE OF AUTHORITIES**

Not applicable.

**VI. STATUS OF AMENDMENTS**

*(1) No amendment was filed after final rejection.*

**VII. GROUNDS OF REJECTION TO BE REVIEWED**

*(1) Rejection of claim 1-3, 6-10, 12-13, 16-19, 29-30, 33-35, and 37-40 as being anticipated under 35 U.S.C. 102(e) over Subasic."*

*(2) Rejection of claims 31-32 and 41-42 as being unpatentable under 35 U.S.C. 103(a) over Subasic, in view of Chase.*

## VIII. STATEMENT OF FACTS

1) It is a fact that the 10/14/2008 Communication states "Subasic et al. fully anticipate the limitation regarding "matching said predetermined set of regular expressions to said plurality of POS tag sequences from said text document by to provide one or more extracted opinions" (Fuzzy Semantic Tagging 112 and affect lexicon 104 in figure 2 and/or referring to col. 3, line 55 to 5, line 60; comparing the input words against words in affect lexicon 104 to determine emotional categories (e.g. figure 5))." (10/14/2008 Communication, p. 2, ll. 4-9.)

2) It is a fact that the 10/14/2008 Communication states "[s]ince the term "expression" is relatively well-known in the English language, it is reasonable to interpret the term "expression" as an indication of feeling, spirit, character, etc. (definition of "expression" according to [www.dictionary.com](http://www.dictionary.com))." (10/14/2008 Communication, p. 2, ll. 9-10.)

3) It is a fact that the 10/14/2008 Communication states "[a]nd individual POS word, phase, and sentence all have expressions ([www.dictionary.com](http://www.dictionary.com)). For example, the term "alert" indicates a kind of intelligence and/or a kind of warning

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(col. 3, lines 61-65). They are expression values of the term.” (10/14/2008 Communication, p. 2, ll. 12-15.)

4) It is a fact that the 10/14/2008 Communication states “[r]egarding applicant's provided example of "regular expression rule", there is no indication of a regular expression rule being claimed or how it is used in "extracting regular expressions".” (10/14/2008 Communication, p. 2, ll. 16-18.)

5) It is a fact that the 10/14/2008 Communication states “[e]stablishing a predetermined set of regular expressions, each regular expression of said predetermined set of regular expressions corresponding to a specific parts-of speech (POS) tag sequence (Affect lexicon 104 in figure contains all the regular expressions or words or standard word models for used in comparison with words extracted from the input text; and/or referring to col. 3, lines 37-54).” (10/14/2008 Communication, p. 3, ll. 17-21.)

6) It is a fact that the 10/14/2008 Communication states “[m]atching said predetermined set of regular expressions to said plurality of POS

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tag sequences from said text document by to provide one or more extracted opinions (Fuzzy Semantic Tagging 112 and affect lexicon 104 in figure 2 and/or referring to col. 3, line 55 to 5, line 60; comparing the input words against words in affect lexicon 104 to determine emotional categories (e.g. figure 5))." (10/14/2008 Communication, p. 4, ll. 1-5.)

7) It is a fact that the 12/10/2008 Response states that "[a]s previously noted in Applicants' prior responses, which are hereby re-stated and incorporated by reference, Subasic is silent concerning regular expressions." (12/10/2008 Response, p. 9, para. 5, ll. 1-2)

8) It is a fact that the 12/10/2008 Response states "[t]he Communication ignores Applicants' definition of the term "regular expression" provided at, for example, para. 23, ll. 6-9 of the Applicants Specification as published." (12/10/2008 Response, p. 9, para. 5, ll. 2-4)

9) It is a fact that the 12/10/2008 Response states "[i]nstead, the Communication asserts that: "[s]ince the term "expression" is relatively well-known in the English

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language, it is reasonable to interpret the term "expression" as an indication of felling, spirit, character, etc. (definition of "expression" according to [www.dictionary.com](http://www.dictionary.com)). And individual POS word, phase, and sentence all have expressions ([www.dictionary.com](http://www.dictionary.com)). For example, the term "alert" indicates a kind of intelligence and/or a kind of warning (col. 3, lines 61-65). They are expression values of the term." (Communication, p. 2, para. 1" (12/10/2008 Response, p. 9, para. 5, ll. 4-11)

10) It is a fact that the 12/10/2008 Response states "Applicants note that paragraph 9, ll. 3-5 of Applicants' Specification as filed also provides a definition for the term "opinions". " (12/10/2008 Response, p. 9, para. 6, ll. 4-5)

11) It is a fact that the 12/10/2008 Response states "[t]he Communication simply omits any explanation as to how "regular" reasonably modifies the term "expression" in the Communication's asserted construction." (12/10/2008 Response, p. 9, para. 6, ll. 5-7)

12) It is a fact that the 12/10/2008 Response states "[h]owever, the



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Communication's reliance on alternate possible meanings for terms is irrelevant since the Applicants have already unambiguously defined what is meant by the terms recited in the claims." (12/10/2008 Response, p. 9, para. 6, ll. 7 – p. 10, para. 6, ll. 2)

13) It is a fact that the 12/10/2008 Response states "Applicants can discern no indication of regular expressions in the cited portions of Chase which merely describes methods of connotative discourse analysis (see for example, Chase, Abstract)." (12/10/2008 Response, p. 10, para. 8, ll. 8-10)

**IX. ARGUMENT**

**A. Rejection of claims 1-3, 6-10,12-13, 16-19, 29-30, 33-35, and 37-40  
as being anticipated under 35 U.S.C. §102(e) over Subasic, U.S.  
Pat. No. 6,721,734.**

**1. Appellant's arguments with respect to Independent claim 1,  
10 and 33.**

[0001] Appellants respectfully submit that Subasic, alone or in combination with Chase fails to disclose, teach or even suggest at least the features of: 1) establishing a predetermined set of regular expressions, each regular expression of said predetermined set of regular expressions corresponding to a specific parts-of-speech (POS) tag sequence; 2) inputting and parsing said text document to provide a plurality of POS tag sequences; 3) matching said predetermined set of regular expressions to said plurality of POS tag sequences from said text document to provide one or more extracted opinions; and 4) lexically analyzing each word of said one or more extracted opinions to group said one or more extracted opinions into clusters of

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extracted opinions, as recited in independent claim 1 and similarly recited in independent claims 10 and 33.

[0002] The 10/14/2008 Communication interprets the “regular expression”, recited in independent claims 1, 10 and 33, as “an indication of feeling, spirit, character etc...” (See fact 2).

[0003] Appellants argued in the 10/14/2008 Response that such an interpretation was inconsistent with the definition of a “regular expression” as set forth in para. 23, ll. 6-9 of the Published Application, (see fact 8). However, the rejection was maintained by the 12/31/2008 Communication which asserted that the 12/10/2008 Response “[d]oes NOT place the application in condition for allowance because: all the POS words have an associated meaning or expression or feeling as explained in the the previous office action.” (see 12/31/2008 Communication, p. 2, ll. 1-2).

[0004] Although Appellants conducted a personal interview with Examiner Vo on January 6, 2009, Examiner Vo asserts that his interpretation of the term “expression” is proper despite the definition in the Application and common usage in computer science.

[0005] Appellants note that the interpretation urged by the

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Communication ignores the term “regular” which clearly modifies “expression”. If the modifier “regular” is added to the meaning of “[f]eeling, spirit, character, etc” as urged by the Office, the results are regular feeling, regular spirit and regular character. In contrast, the term “regular expression” in the computer science arts relates to regular languages.

[0006] Appellants submit that it is unclear how the Communication's interpretation of “regular feelings” is tenable in light of the description in the Published Application of a regular expression as “a pattern of composed from combinations of symbols (POS tags in this case) and the three operators are Concatenation, Or and Closure.” (Published Application, para. 23, ll. 6-9).

[0007] The 10/14/2008 Communication asserts that “And individual POS word, phase, and sentence all have expressions ([www.dictionary.com](http://www.dictionary.com)).” (10/14/2008 Communication, p. 2, ll. 12-13, see fact 3). Appellants submit that a “POS word” is not a feature recited in the claims. Instead the claims recite “establishing a predetermined set of regular expressions, ....corresponding to a specific parts-of-speech (POS) tag sequence”. A specific parts-of-speech (POS) tag sequence is a pattern an example of which

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is provided in Table 2 of the Published Application.

[0008] The 10/14/2008 Communication asserts that Subasic's POS in step 102 of Fig. 2 maps to "...inputting and parsing said text document to provide a plurality of POS tag sequences." Appellants note that Subasic states that "[t]agging the document involves parsing the document into individual words and normalizing the words according to the English language using the grammar rules 110." However, nothing in Subasic discloses, teach or even suggests "...inputting and parsing said text document to provide a plurality of POS tag sequences." At most, Subasic discloses normalizing words in the document which are then looked up in the affect lexicon to provide an indicator of the emotional content of words in the document, (see Subasic, col. 3, ll. 37-39.) Subasic mentions part of speech, but in terms of providing different emotional indicators depending on whether, in the example, the word is an adjective or a verb. Subasic does not disclose, teach or suggest the use of POS tag sequences.

[0009] The 10/14/2008 Communication asserts that Subasic's comparison of input words against words in the affect lexicon, to determine emotional categories discloses "...matching said predetermined set of regular

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expressions to said plurality of POS tag sequences from said text document to provide one or more extracted opinions,” as recited in the independent claims.

[0010] Appellants respectfully submit that: 1) the claims recite POS tag sequences rather than words; 2) an affect lexicon is not “a predetermined set of regular expressions”; and 3) an emotional category is not an opinion.

[0011] Subasic compares words in an input document to the words in an affect lexicon to create an indication of the overall emotional affect of the document. Thus, Subasic states that “a word like corpse certainly entails some affect, and can plausibly be assigned to categories sadness and horror...” (Subasic, col. 4, ll. 21-23). Subasic provides a means for extending the affect lexicon in which a developer would ask questions such as “[t]o what extent can affect X be replaced with category C in the text, without changing the meaning?” (Subasic, col. 4, ll. 46-48).

[0012] The final result of a document analyzed by Subasic is a set of affect categories that indicate the exemplary document has a high degree of “humor, warning, anger, success, slander, greed, horror, aversion, absurdity, excitement...and a low degree of pain, disloyalty, failure, creation and

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surprise” (Subasic, col. 8, ll. 20-28). Thus, Subasic is clearly not extracting an opinion from the text and is instead merely categorizing words by emotion to indicate the cumulative emotional or affect of the document.

[0013] Moreover, since Subasic fails to extract an opinion, it cannot disclose, teach or even suggest “lexically analyzing each word of said one or more extracted opinions to group said one or more extracted opinions into clusters of extracted opinions.” Therefore Appellants submit that independent claims 1, 10 and 33 are patentable over the prior art of record.

### **2. Appellant's arguments with respect to Independent Claim**

#### **33.**

[0014] Appellants note that independent claim 33 defines patentable subject matter for at least the reasons discussed above. However, independent claim 33 also recites the features directed to: “marking said one or more extracted opinions in said text document with classification tags, wherein said classification tags correspond to said clusters of extracted opinions.”

[0015] The 10/14/2008 Communication asserts that the tagging of

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affect words in a document discloses this feature but fails to indicate why. That is, the rejection is based on the hidden premise that an affect word is an opinion. As discussed in paragraph 11 above, Subasic would propose tagging the word "corpse" with a category of sadness or horror to determine the overall affect of the document using a bag of words model. This simply does not describe extracting opinions in the document. Thus, an extracted opinion that Linda Blair acted very well playing a near corpse in the movie the Exorcist, is not the same as the affect associated with the sadness or horror affect with which the word "corpse" is tagged by Subasic.

[0016] Thus, it should be clear that the failure of the 10/14/2008 Communication to reasonably establish an equivalence is an error correctable by the Board. Thus, claim 33 defines patentable subject matter over the art of record.

[0017] Further dependent claims 2-3, 6-9, 12-13, 16-19, 29-30, 33-35 and 37-40 stand or fall with independent claims 1, 10 and 33 are therefore patentable.

### **B. Rejection of Claims 31-32 and 41-42 as being unpatentable under**



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**35 U.S.C. §103(a) over Subasic, in view of Chase, U.S. Pat. No.**

**6,332,143.**

**1. Appellant's arguments with respect to Dependent Claims**

**31-32 and 41-42.**

[0018] The 10/14/2008 Communication admits that Subasic fails to disclose graphically displaying said clusters of extracted opinions..." The 10/14/2008 Communication attempts to remedy these admitted deficiencies by combining Subasic with Chase. However, Chase fails to remedy the above-identified deficiencies of Subasic. Claims 31-32 and 41-42 depend from claims 1 and 10 and therefore define patentable subject matter over Subasic for at least the same reasons as well as for their additional features.

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**X. CONCLUSION**

In view of the foregoing, Appellant submits that claims 1-3, 6-10, 12-13, 16-19, 29-35, and 37-42, all of the claims presently pending in the application, are patentably distinct over the prior art of record and are in condition for allowance. Thus, the Board is respectfully requested to remove the rejections of claims 1-3, 6-10, 12-13, 16-19, 29-35, and 37-42.

The Commissioner is hereby authorized to charge any deficiency in fees or to credit any overpayment in fees to Attorney's Deposit Account No. 09-0441.

Respectfully submitted,

Date: March 5, 2009

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**APPENDIX**

**CLAIMS SECTION**

1. (REJECTED) A method of analyzing opinions in a text document, said method comprising:

establishing a predetermined set of regular expressions, each regular expression of said predetermined set of regular expressions corresponding to a specific parts-of-speech (POS) tag sequence;

inputting and parsing said text document to provide a plurality of POS tag sequences;

matching said predetermined set of regular expressions to said plurality of POS tag\_sequences from said text document to provide one or more extracted opinions; and

lexically analyzing each word of said one or more extracted opinions to group said one or more extracted opinions into clusters of extracted opinions.

2. (REJECTED) The method of claim 1, wherein said clusters of extracted

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opinions comprise any of positive and negative clusters of extracted opinions.

3. (REJECTED) The method of claim 1, wherein said clusters of extracted opinions comprise any of positive, negative, and neutral clusters of extracted opinions.

4-5. (CANCELLED).

6. (REJECTED) The method of claim 1, further comprising organizing said clusters of extracted opinions into groups, wherein said one or more extracted opinions within each of said groups comprises a similar topic.

7. (REJECTED) The method of claim 1, wherein said lexically analyzing each word of said one or more extracted opinions comprises accessing a natural language database to group said one or more extracted opinions into said clusters of extracted opinions.

8. (REJECTED) The method of claim 1, wherein said lexically analyzing each

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word of said one or more extracted opinions comprises identifying any of a synonym and an antonym for said each word of said one or more extracted opinions.

9. (REJECTED) The method of claim 1, wherein said lexically analyzing each word of said one or more extracted opinions comprises determining a morphological stem for said each word of said one or more extracted opinions.

10. (REJECTED) A program storage device readable by machine, tangibly embodying a program of instructions executable by said machine to perform a method of analyzing opinions in a text document, said method comprising:

establishing a predetermined set of regular expressions, each regular expression of said set of regular expressions corresponding to a specific parts-of-speech (POS) tag sequence;

inputting and parsing said text document to provide a plurality of POS tag sequences;

matching said predetermined set of regular expressions to said plurality of POS tag sequences from said text document to provide one or more extracted

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opinions; and

lexically analyzing each word of said one or more extracted opinions to group said one or more extracted opinions into clusters of extracted opinions.

11. (CANCELLED).

12. (REJECTED) The program storage device of claim 10, wherein said clusters of extracted opinions comprise any of positive and negative clusters of extracted opinions.

13. (REJECTED) The program storage device of claim 10, wherein said clusters of extracted opinions comprise any of positive, negative, and neutral clusters of extracted opinions.

14-15. (CANCELLED).

16. (REJECTED) The program storage device of claim 10, further comprising organizing said clusters of extracted opinions into groups, wherein said one or more

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extracted opinions within each of said groups comprises a similar topic.

17. (REJECTED) The program storage device of claim 10, wherein said lexically analyzing each word of said one or more extracted opinions comprises accessing a natural language database to group said one or more extracted opinions into said clusters of extracted opinions.

18. (REJECTED) The program storage device of claim 10, wherein said lexically analyzing each word of said one or more extracted opinions comprises identifying any of a synonym and an antonym for said each word of said one or more extracted opinions.

19. (REJECTED) The program storage device of claim 10, wherein said lexically analyzing each word of said one or more extracted opinions comprises determining a morphological stem for said each word of said one or more extracted opinions.

20-28. (CANCELLED).

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29. (REJECTED) The method of claim 1, further comprising marking said one or more extracted opinions in said text document with classification tags, wherein said classification tags correspond to said clusters of extracted opinions.

30. (REJECTED) The program storage device claim 10, further comprising marking said one or more extracted opinions in said text document with classification tags, wherein said classification tags correspond to said clusters of extracted opinions.

31. (REJECTED) The method of claim 41, wherein said graphically displaying comprises displaying said clusters of extracted opinions using any of a pie-chart and a bar-chart.

32. (REJECTED) The program storage device of claim 42, wherein said graphically displaying comprises displaying said clusters of extracted opinions using any of a pie-chart and a bar-chart.

33. (REJECTED) A method of analyzing opinions in a text document, said



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method comprising:

establishing a predetermined set of regular expressions, each regular expression of said set of regular expressions corresponding to a specific parts-of-speech (POS) tag sequence;

inputting and parsing said text document to provide a plurality of POS tag sequences;

matching said predetermined set of regular expressions to said plurality of POS tag sequences from said text document to provide one or more extracted opinions;

lexically analyzing each word of said one or more extracted opinions to group said one or more extracted opinions into clusters of extracted opinions; and

any of:

marking said one or more extracted opinions in said text document with classification tags, wherein said classification tags correspond to said clusters of extracted opinions; and

graphically displaying said clusters of extracted opinions, wherein said graphically displaying comprises any of:

displaying relative proportions of said extracted opinions in said

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clusters of extracted opinions; and

displaying said clusters of extracted opinions using any of a pie-chart and a bar-chart.

34. (REJECTED) The method of claim 33, wherein said clusters of extracted opinions comprise any of positive and negative clusters of extracted opinions.

35. (REJECTED) The method of claim 33, wherein said clusters of extracted opinions comprise any of positive, negative, and neutral clusters of extracted opinions.

36. (CANCELLED).

37. (REJECTED) The method of claim 33, further comprising organizing said clusters of extracted opinions into groups, wherein said one or more extracted opinions within each of said groups comprises a similar topic.

38. (REJECTED) The method of claim 33, wherein said lexically analyzing each

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word of said one or more extracted opinions comprises accessing a natural language database to group said one or more extracted opinions into said clusters of extracted opinions.

39. (REJECTED) The method of claim 33, wherein said lexically analyzing each word of said one or more extracted opinions comprises identifying any of a synonym and an antonym for said each word of said one or more extracted opinions.

40. (REJECTED) The method of claim 33, wherein said lexically analyzing each word of said one or more extracted opinions comprises determining a morphological stem for said each word of said one or more extracted opinions.

41. (REJECTED) The method of claim 1 further comprising graphically displaying said clusters of extracted opinions, wherein said graphically displaying comprises displaying relative proportions of said extracted opinions in said clusters of extracted opinions.

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42. (REJECTED) The program storage device of claim 10 further comprising graphically displaying said clusters of extracted opinions, wherein said graphically displaying comprises displaying relative proportions of said extracted opinions in said clusters of extracted opinions.

**APPENDIX**

**CLAIM SUPPORT AND DRAWING ANALYSIS SECTION**

The following annotated claims help illustrate the features defined by the claims, but are not intended to be an exhaustive listing of the claimed features. Instead, the specification may contain many more examples of such claimed features. Thus, the following claims are not intended to be limited to or limited by the following brief annotations.

1. A method of analyzing opinions in a text document, said method comprising: (1) establishing a predetermined set of regular expressions, each regular expression of said predetermined set of regular expressions corresponding to a specific parts-of-speech (POS) tag sequence {Fig. 1, element 115; page 4, lines 7-15}; (2) inputting and parsing said text document to provide a plurality of POS tag sequences {Fig. 1, element 105; page 4, lines 7-15}; (3) matching said predetermined set of regular expressions to said plurality of POS tag sequences from said text document to provide one or more extracted opinions {Fig. 1, elements 120 and 125; page 4, lines 7-15}; and (4) lexically analyzing each word of

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said one or more extracted opinions to group said one or more extracted opinions into clusters of extracted opinions {Fig. 1, elements 130, 135 and 140}.

10. A program storage device readable by machine, tangibly embodying a program of instructions executable by said machine to perform a method of analyzing opinions in a text document, said method comprising: (1) establishing a predetermined set of regular expressions, each regular expression of said set of regular expressions corresponding to a specific parts-of-speech (POS) tag sequence {Fig. 1, element 115; page 4, lines 7-15}; (2) inputting and parsing said text document to provide a plurality of POS tag sequences {Fig. 1, element 105; page 4, lines 7-15}; (3) matching said predetermined set of regular expressions to said plurality of POS tag sequences from said text document to provide one or more extracted opinions {Fig. 1, elements 120 and 125; page 4, lines 7-15}; and (4) lexically analyzing each word of said one or more extracted opinions to group said one or more extracted opinions into clusters of extracted opinions {Fig. 1, elements 130, 135 and 140; page 4, lines 7-15}.

33. A method of analyzing opinions in a text document, said method comprising: (1) establishing a predetermined set of regular expressions, each regular expression of said set of regular expressions corresponding to a specific

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parts-of-speech (POS) tag sequence {Fig. 1, element 115; page 4, lines 7-15}; (2) inputting and parsing said text document to provide a plurality of POS tag sequences {Fig. 1, element 105; page 4, lines 7-15}; (3) matching said predetermined set of regular expressions to said plurality of POS tag sequences from said text document to provide one or more extracted opinions {Fig. 1, elements 120 and 125; page 4, lines 7-15}; (4) lexically analyzing each word of said one or more extracted opinions to group said one or more extracted opinions into clusters of extracted opinions {Fig. 1, elements 130, 135 and 140; page 4, lines 7-15}; and any of: (5) marking said one or more extracted opinions in said text document with classification tags, wherein said classification tags correspond to said clusters of extracted opinions {Fig. 1, element 145; page 4, lines 7-15}; and graphically displaying said clusters of extracted opinions, wherein said graphically displaying comprises any of: (6) displaying relative proportions of said extracted opinions in said clusters of extracted opinions {Fig. 1, element 140; page 4, lines 7-15}; and (7) displaying said clusters of extracted opinions using any of a pie-chart and a bar-chart {Fig. 3, element 300; page 9, lines 18-22}.

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**APPENDIX**

**MEANS OR STEP PLUS FUNCTION ANALYSIS SECTION**

Not applicable.



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**APPENDIX**

**EVIDENCE SECTION**

Not applicable.

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**APPENDIX**

**RELATED CASES SECTION**

Not applicable.